

10/698,368
F03-161820M/YS

2

RECEIVED
CENTRAL FAX CENTER

JUL 07 2008

AMENDMENTS TO THE CLAIMS:

1. (Currently amended) An image compression method for compressing image data, comprising:

storing compression characteristics data indicating compression characteristics of plural images having plural complexities;

acquiring an initial compression parameter;

performing a compression process on image data of an image to be compressed based on the initial compression parameter;

acquiring a corrective compression parameter; and

performing another compression process on the image data of the image to be compressed based on the corrective compression parameter,

wherein the compression characteristics comprise indicate a relationship between a bit rate, which is a ratio between data volume and the number of pixels of image data, and a compression parameter associated with image quality and compression rate,

wherein said acquiring an initial compression parameter acquires the initial compression parameter based on said compression characteristics data of an average image and a target bit rate, and

wherein said acquiring said corrective compression parameter includes:

acquiring from among said plural complexities, a complexity of the image to be compressed based on a bit rate of compressed image data acquired in performing said compression process, and said initial compression parameter; and

acquiring from the compression characteristics data the corrective compression parameter based on the acquired complexity of said image to be compressed and the target bit rate, and

wherein said initial and corrective compression parameters comprise a Q-value.

2. (Currently amended) The image compression method according to claim 1, wherein the compression process comprises a compression process based on Joint Photographic Experts Group (JPEG) standard, ~~and wherein the compression parameter comprises a Q-~~

10/698,368
F03-161820M/YS

3

value.

3. (Currently amended) An image compression apparatus for compressing image data, comprising:

a compression characteristics storing section for storing compression characteristics data indicating compression characteristics of plural images having plural complexities; and

a compression process section for performing a compression process on image data of an image to be compressed,

wherein the compression characteristics comprise ~~indicate~~ a relationship between a bit rate, which is a ratio between data volume and the number of pixels of image data, and a compression parameter associated with image quality and compression rate of the compression process,

wherein the compression process section includes a compression parameter acquisition unit for acquiring an initial compression parameter and a corrective compression parameter, and a compression process performing unit for performing the compression process based on one of the initial compression parameter and the corrective compression parameter,

wherein the compression parameter acquisition unit acquires the initial compression parameter based on said compression characteristics data of an average image and a target bit rate,

wherein the compression parameter acquisition unit:

estimates from among said plural complexities a complexity of the image to be compressed based on a bit rate of compressed image data acquired by the compression process, and said initial compression parameter; and

acquires from the compression characteristics data the corrective compression parameter based on the estimated complexity of the image to be compressed, and the target bit rate, and

wherein said initial and corrective compression parameters comprise a Q-value.

4. (Currently amended) The image compression apparatus according to claim 3, wherein the compression process comprises a compression process based on Joint Photographic

10/698,368
F03-161820M/YS

4

Experts Group (JPEG) standard, ~~and wherein the compression parameter comprises a Q-value.~~

5. (Currently amended) An image compression apparatus for compressing image data, comprising:

a compression characteristics memory which stores compression characteristics data indicating compression characteristics of plural images having plural complexities; and

a compression processor which performs a compression process on image data of an image to be compressed,

wherein the compression characteristics comprise indicate a relationship between a bit rate, which is a ratio between data volume and the number of pixels of image data, and a compression parameter associated with image quality and compression rate of the compression process,

wherein the compression processor includes a compression parameter acquisition unit which acquires an initial compression parameter and a corrective compression parameter, and a compression process performing unit which performs the compression process based on the initial compression parameter or the corrective compression parameter,

wherein the compression parameter acquisition unit acquires the initial compression parameter based on said compression characteristics data of an average image and a target bit rate,

wherein the compression parameter acquisition unit:

estimates from among said plural complexities a complexity of the image to be compressed based on a bit rate of compressed image data acquired by the compression process, and said initial compression parameter; and

acquires from the compression characteristics data the corrective compression parameter based on the estimated complexity of the image to be compressed, and the target bit rate, and

wherein said initial and corrective compression parameters comprise a Q-value.

6. (Previously presented) The image compression method according to claim 1, wherein said compression process comprises at least one of a discrete cosine transform process, a

10/698,368

5

F03-161820M/YS

quantization process, and a Huffman coding process.

7. (Previously presented) The image compression method of claim 2, wherein said Q-value comprises a variable between 0 and 1, and an image quality of a compressed image formed by said compressed image data is improved by increasing said Q-value.

8. (Previously presented) The image compression method of claim 1, further comprising:
determining said compression characteristics by:

performing a compression process on sample image data for a sample image using a predetermined compression parameter, to acquire a bit rate from a data volume of compressed sample image data and the number of pixels of said sample image.

9. (Previously presented) The image compression method of claim 8, wherein said determining said compression characteristics further comprises:

repeating said compression process on said sample image data plural times using different compression parameters.

10. (Previously presented) The image compression method of claim 9, wherein said sample image comprises plural sample images of varying complexity.

11. (Previously presented) The image compression method of claim 1, wherein said storing said compression characteristics comprises storing said compression characteristics in one of a table and a function for approximating said compression characteristics.

12. (Previously presented) The image compression method of claim 1, further comprising:
acquiring said target bit rate from a number of pixels of said image data of said image to be compressed and a target data volume of compressed image data.

13. (Previously presented) The image compression method of claim 12, further comprising:

acquiring a data volume of said compressed image data generated by the compression

10/698,368
F03-161820M/YS

6

process.

14. (Previously presented) The image compression method of claim 13, further comprising:

judging whether said acquired data volume is within a range of limitation.

15. (Previously presented) The image compression method of claim 14, further comprising:

if said acquired data volume is within said range of limitation, terminating said compression process.

16. (Previously presented) The image compression method of claim 15, further comprising:

if said acquired data volume is other than within said range of limitation, performing said acquiring said corrective compression parameter, said acquiring said corrective compression parameter further comprising:

acquiring a bit rate of said compressed image data;

acquiring a function that gives said bit rate of said compressed image data for said initial compression parameter with reference to said compression characteristics data;

acquiring another compression parameter by using said target bit rate and said acquired function; and

repeating said performing said compression process using said another compression parameter and said judging whether said data volume of said compressed image data is within said range of limitation until said data volume of said compressed image data is within said range of limitation.

17. (Previously presented) The image compression apparatus according to claim 5, further comprising:

an input device for inputting said image data and target data volume for performing said compression process; and

an output device for outputting said compressed image data.

10/698,368
F03-161820M/YS

7

18. (Previously presented) A digital camera comprising the image compression apparatus according to claim 5.
19. (Previously presented) A computer comprising the image compression apparatus according to claim 5.
20. (Previously presented) The image compression method according to claim 1, wherein said acquiring said complexity of said image to be compressed comprises acquiring the following function corresponding to said image to be compressed:
 $Q=f(R)$, where Q denotes the compression parameter and R denotes the bit rate.
21. (Previously presented) The image compression apparatus according to claim 3, wherein said estimated complexity is represented by the following function:
 $Q=f(R)$, where Q denotes the compression parameter and R denotes the bit rate.
22. (Previously presented) The image compression apparatus according to claim 5, wherein said estimated complexity is represented by the following function:
 $Q=f(R)$, where Q denotes the compression parameter and R denotes the bit rate.
23. (Currently amended) The method according to claim 1, wherein if a bit rate of the compressed image data of the image to be compressed is greater ~~larger~~ than the target bit rate, then the another ~~other~~ compression process is performed on the image data of the image to be compressed based on the corrective compression parameter.
24. (Currently amended) The apparatus according to claim 3, wherein if a bit rate of the compressed image data of the image to be compressed is greater ~~larger~~ than the target bit rate, the compression process section performs another compression process on the image data of the image to be compressed based on the corrective compression parameter.
25. (Currently amended) The apparatus according to claim 5, wherein if a bit rate of the

10/698,368
F03-161820M/YS

8

compressed image data of the image to be compressed is greater larger than the target bit rate, the compression process section performs another compression process on the image data of the image to be compressed based on the corrective compression parameter.